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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet	1	of	8

Complete if Known	
Application Number	10/644,293
Filing Date	August 20, 2003
First Named Inventor	Liotta, *et al.*
Group Art Unit	Unassigned
Examiner Name	Unassigned
Attorney Docket Number	18085.105119 EMU 134 DIV4

3339248_5.DOC

U.S. PATENT DOCUMENTS

Examiner Initials *	Cite No. [1]	U.S. Patent Document Number	Kind Code [2] (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	AA	3,116,268		Farago	12-31-1963	
	AB	3,116,282		Hunter	12-31-1963	
	AC	3,553,192		Gauri	01-05-1971	
	AD	4,000,137		Dvonch, *et al.*	12-28-1976	
	AE	4,336,381		Nagata, *et al.*	06-22-1982	
	AF	4,861,759		Mitsuya, *et al.*	08-29-1989	
	AG	4,879,277		Mitsuya, *et al.*	11-07-1989	
	AH	4,900,828		Belica, *et al.*	02-13-1990	
	AI	4,916,122		Chu, *et al.*	04-10-1990	
	AJ	4,963,533		de Clercq, *et al.*	10-16-1990	
	AK	4,968,674		Taniyama, *et al.*	11-06-1990	
	AL	5,011,774		Farina, *et al.*	04-30-1991	
	AM	5,041,449		Belleau, *et al.*	08-20-1991	
	AN	5,047,407		Belleau, *et al.*	09-10-1991	
	AO	5,059,690		Zahler, *et al.*	10-22-1991	
	AP	5,071,983		Koszalka, *et al.*	12-10-1991	
	AQ	5,089,500		Daluge	02-18-1992	
	AR	5,151,426		Belleau, *etal.*	09-29-1992	
	AS	5,179,104		Chu, *etal.*	01-12-1993	
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	AV	5,210,085		Liotta, *etal.*	05-11-1993	
	AW	5,215,971		Datema, *et al.*	06-01-1993	
	AX	5,234,913		Furman, Jr., *etal.*	08-10-1993	
	AY	5,246,924		Fox, *et al.*	09-21-1993	
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	AAC	5,409,906		Datema, *et al.*	04-25-1995	
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	AAE	5,444,063		Schinazi	08-22-1995	
	AAF	5,446,029		Eriksson, *et al.*	08-29-1995	
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Examiner Signature		Date Considered	11-21-05

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Sheet 2 of 8

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Group Art Unit	Unassigned
Examiner Name	Unassigned
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	BA	5,486,520		Belleau, *et al.*	01-23-1996	
	BB	5,521,161		Malley, *et al.*	05-28-1996	
	BC	5,532,246		Belleau, *et al.*	07-02-1996	
	BD	5,538,975		Dionne	07-23-1996	
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	BF	5,587,480		Belleau, *et al.*	12-24-1996	
	BG	5,618,820		Dionne	04-08-1997	
	BH	5,663,320		Mansour et al.	09-02-1997	
	BI	5,684,164		Belleau	11-04-1997	
	BJ	5,693,787		Mansour	12-02-1997	
	BK	5,696,254		Mansour	12-09-1997	
	BL	5,700,937		Liotta, *et al.*	12-23-1997	
	BM	5,728,575		Liotta, *et al.*	03-17-1998	
	BN	5,744,596		Mansour	04-28-1998	
	BO	5,756,706		Mansour	05-26-1998	
	BP	5,814,639		Liotta, *et al.*	09-29-1998	
	BQ	5,827,727		Liotta, *et al.*	10-27-1998	
	BR	5,892,025		Liotta	04-06-1999	
	BS	5,914,331		Liotta, *et al.*	06-22-1999	
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	BU	6,069,252		Liotta, *et al.*	05-30-2000	
	BV	6,153,751		Liotta, *et al.*	11-28-2000	
	BW	6,346,627		Liotta, *et al.*	02-12-2002	
	BX	6,642,245		Liotta, *et al.*	11-04-2003	
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	BZ	WO	88/07532		Holmes; Nycomed A.S.	10-06-1988		
	BAA	WO	88/08001		Aktiebolaget Astra	10-20-1988		
	BAB	WO	90/12023		Walker, *et al.*	10-18-1990		

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Sheet 3 of 8

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Application Number	10/644,293
Filing Date	August 20, 2003
First Named Inventor	Liotta, *et al.*
Group Art Unit	Unassigned
Examiner Name	Unassigned
Attorney Docket Number	18085.105119 EMU 134 DIV4

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	CA	WO	91/09124		Biotech Australia Pty Ltd	06-27-1991		
	CB	WO	91/11186	A1	Emory University	08-08-1991		
	CC	WO	91/17159		IAF Biochem. Int'l Inc.	11-14-1991		
	CD	WO	92/06102		Medivir A.B.	04-16-1992		
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	CF	WO	92/10496		U. Georgia Res. Found.	06-25-1992		
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	CJ	WO	92/15308		Wellcome Foundation Ltd	09-17-1992		
	CK	WO	92/15309		Wellcome Foundation Ltd	09-17-1992		
	CL	WO	92/18517		Yale U.; U. Georgia R. F.	10-29-1992		
	CM	WO	92/21676		Glaxo Group Ltd.	12-10-1992		
	CN	WO	93/03027		Biochem Pharma Inc.	02-18-1993		
	CO	WO	93/23021		Wellcome Foundation Ltd	11-25-1993		
	CP	WO	94/04154		U. Georgia R.F.; Emory	03-03-1994		
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	CR	WO	94/14456		Biochem Pharma Inc.	07-07-1994		
	CS	WO	94/14802		Biochem Pharma Inc.	07-07-1994		
	CT	WO	94/14831		University of Alberta	07-07-1994		
	CU	WO	94/27590		United States (Sec. HHS)	12-08-1994		
	CV	WO	94/27616		Yale University	12-08-1994		
	CW	WO	95/07086		Emory, C.N.R.S., UAB	03-16-1995		
	CX	WO	95/07287		C.N.R.S.	03-16-1995		
	CY	WO	95/18137		Genta, Inc.	07-06-1995		
	CZ	WO	95/20595		U. Georgia R. F.; Yale U.	08-03-1995		
	CAA	WO	95/21183		Acid (Canada) Inc.	08-10-1995		
	CAB	WO	96/07413		U. Georgia R. F.; Yale U.	03-14-1996		
	CAC	WO	96/40164		Emory, UAB, C.N.R.S.	12-19-1996		
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	CAE	EP	0 206 497		Wellcome Foundation Ltd	12-30-1986		
	CAF	EP	0 217 580		Wellcome Foundation Ltd	04-08-1987		
	CAG	EP	0 285 884		Bristol-Myers Co.	10-12-1988		

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Application Number	10/644,293
Filing Date	August 20, 2003
First Named Inventor	Liotta, *et al.*
Group Art Unit	Unassigned
Examiner Name	Unassigned
Attorney Docket Number	18085.105119 EMU 134 DIV4

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	DA	EP	0 337 713		Biochem Pharma Inc.	10-18-1989		
	DB	EP	0 350 811		E.R. Squibb & Sons, Inc.	01-17-1990		
	DC	EP	0 352 248		Medivir Aktiebolag	01-24-1990		
	DD	EP	0 357 009		G.D. Searle & Co.	03-07-1990		
	DE	EP	0 361 831		Wellcome Foundation Ltd	04-04-1990		
	DF	EP	0 375 329		Wellcome Foundation Ltd	06-27-1990		
	DG	EP	0 382 526		IAF Biochem Int'l Inc.	08-16-1990		
	DH	EP	0 409 227		Akad. Wissensch. DDR	01-23-1991		
	DI	EP	0 421 636		E.R. Squibb & Sons, Inc.	04-10-1991		
	DJ	EP	0 433 898		Abbott Laboratories	06-26-1991		
	DK	EP	0 494 119		IAF Biochem Int'l Inc.	07-08-1992		
	DL	EP	0 515 144		Biochem Pharma Inc.	11-25-1992		
	DM	EP	0 515 156		Biochem Pharma Inc.	11-25-1992		
	DN	EP	0 515 157		Biochem Pharma Inc.	11-25-1992		
	DO	EP	0 526 253		Biochem Pharma Inc.	02-03-1993		
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	DR	AU	630913	B2	Biochem Pharma Inc.	11-12-1992		
	DS	AU	665187	B2	Emory University	12-21-1995		
	DT	NZ	0238017	A	Biochem Pharma Inc.	06-27-1994		

Examiner Signature		Date Considered	11-21-05

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First Named Inventor	Liotta, *et al.*
Group Art Unit	Unassigned
Examiner Name	Unassigned
Attorney Docket Number	18085.105119 EMU 134 DIV4

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OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. [1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
PL	EA	ABOBO, *et al*, "Pharmacokinetics of 2', 3' -Dideoxy-5-fluoro-3'-thiacytidine in Rats," *J. of Pharmaceutical Sciences*, 83(1):96-99 (1994)	
PL	EB	AGRANT and BIEDERMANN, "Intellectual Property and Chirality: Patentability of Enantiomers of Racemic Drugs in a Racemic Switch Scenario," Institute for Advanced Studies at The Hebrew University of Jerusalem, *8th Chirality Conference*, Edinburgh, UK (07/02/1996)	
	EC	~~-ALLTECH ASSOCIATES, INC., "The Separation of Optical Isomers," *Bulletin #87.*~~ No Date	
PL	ED	BEACH, J.W., *et al.*, "Synthesis of Enantiomerically Pure (2'R,5'S)-(1)-l-[2-hydroxymethyl)-oxatiolan-5-yl] Cytosine as a Potent Antiviral Agent Against Hepatitis B Virus (HBV) and Human Immunodeficiency Virus (HIV)," *J. Org. Chem.*, 57:2217-2219 (1992)	
	EE	BELLEAU, B., *et al.*, "Design and Activity of a Novel Class of Nucleoside Analogs Effective Against HIV-I," *International Conference on AIDS*, Montreal, Quebec, Canada, June 4-9, 1989	
	EF	BORTHWICK, A.D., *et al.*, "Synthesis and Enzymatic Resolution of Carbocyclic 2'-Ara-Fluoro Guanosine: A Potent New Anti-Herpetic Agent," *J. Chem. Soc. Cornmun.*, 10:656-658 (1988)	
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	EH	CHANG, C-N., *et al.*, "Biochemical Pharmacology of (+) and (-)-2',3'-Dideoxy-3'-Thiacytidine as Anti-Hepatitis B Virus Agents, *J. Biol. Chem.*, 267(31):22414-22420 (1992)	
	EI	CHOI, *et al*, "In Sim Complexation Directs the Stereochemistry of N-Glycosylation in the Synthesis of Oxathiolanyl and Dioxolanyl Nucleoside Analogues," *J. Am. Chem. Soc.*, 113:9377-9379 (1991)	
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✓	EN	CONNOLLY, *et al.*, "Minireview: Antiretroviral Therapy: Reverse Transcriptase Inhibition," *Antimicrobial Agents and Chemotherapy*, 36(2):245-254 (1992)	
PL	EO	DOONG, Shin-Lian., *et al.*, "Inhibition of the Replication of Hepatitis B Virus *in vitro* by 2',3'-Dideoxy-3'-Thiacytidine and Related Analogues," *Natl. Acad. Sci. USA*, 88:8495-8499 (1991)	

Examiner Signature		Date Considered	11-21-05

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PC	FA	FEORINO, *et al.*, "Prevention of activation of HIV-1 by antiviral agents in OM-10.1 cells," *Antiviral Chem. & Chemotherapy,* 4(1):55-63 (1993)	
	FB	FRICK, *et al.*, "Pharmacokinetics, Oral Bioavailability, and Metabolic Disposition in Rats of (-)-*cis*-5-Fluoro-1-[2-(Hydroxymethyl)-1,3-Oxathiolan-5-yl] Cytosine, a Nucleoside Analog Active against Human Immunodeficiency Virus and Hepatitis B Virus," *Antimicrobial Agents and Chemotherapy,* 37(11):2285-2292 (1993)	
	FC	FRICK, *et al.*, "Pharmacokinetics, Oral Bioavailability, and Metabolism in Mice and Cynomolgus Monkeys of *(2'R,5'S-)-cis-5*-Fluoro- 1-[2-(Hydroxymethyl)-1,3-Oxathiolan-5-yl] Cytosine, an Agent Active against Human Immunodeficiency Virus and Human Hepatitis B Virus," *Antimicrobial Agents and Chemotherapy,* 38(12):2722-2729 (1994)	
	FD	FURMAN, *et al.*, "*The* Anti-Hepatitis B Virus Activities, Cytotoxicities, and Anabolic Profiles of the (-) and (+) Enantiomers *of cis*-5-Fluoro-1-[2-(Hydromethyl)-1,3-Oxthiolane-5-yl]Cytosine," *Antimicrobial Agents and Chemotherapy,* 36(12):2686-2692 (1992)	
	FE	HERDEWIJN, *et al.*, "Resolution of Aristeromycin Enantiomers," *J. Med. Chem.*, 28:1385-1386 (1985).	
	FF	HOONG, *et al*, "Enzyme-Mediated Enantioselective Preparation of Pure Enantiomers of the Antiviral Agent 2',3'-Dideoxy-5-fluoro-3'-thiacytidine (FTC) and Related Compounds," *J. Org. Chem.*, 57:5563-5565 (1992)	
	FG	HUTCHINSON, "New approaches to the synthesis of antiviral nucleosides," *Trends in Biotech.*, 8(12):348-353 (1990)	
	FH	IMAI, *et al.*, "Studies on Phosphorylation. IV. Selective Phosphorylation of the Primary Hydroxyl Group in Nucleosides," *J. of Org. Chem.*, 34(6):1547-1550 (1969)	
	FI	ITO, *et al.*, "Chirally Selective Synthesis of Sugar Moiety of Nucleosides by Chemicoenzymatic Approach: L- and D-Riboses, Showdomycin, and Cordycepin," *J. Am. Chem. Soc.*, 103:6739-6741 (1981)	
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	FK	JEONG, L., *et al.*, "Asymmetric Synthesis and Biological Evaluation of β-L-(2R,5S)- and a-L (2R-5R)-1,3-Oxathiolane-Pyrimidine and -Purine Nucleosides and Potential Anti-HIV Agents," *J. Med. Chem.*, 36(2):181-195 (1993)	
	FL	KIM, *et al.*, "Asymmetric Synthesis of 1,3-Dioxolane-Pyrhnidine Nucleosides and Their Anti-HIV Activity," *J. Med. Chem.*, 35:1987-1995 (1992)	
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Examiner Signature	Patricia Lewis	Date Considered	11-21-05

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet	7	of	8

Complete if Known	
Application Number	10/644,293
Filing Date	August 20, 2003
First Named Inventor	Liotta, *et al.*
Group Art Unit	Unassigned
Examiner Name	Unassigned
Attorney Docket Number	18085.105119 EMU 134 DIV4

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OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
RL	GA	KIM, *et al.*, "Potent Anti-HIV and Anti-HBV Activities of (-)-L-β-Dioxolane-C and (+)-L-β-Dioxolane-T and Their Asymmetric Syntheses," *Tetrahedron Lett.*, 33(46):6899-6902 (1992)	
	GB	KRENITSKY, *et al.*, "An Enzymic Synthesis of Purine D-arabinonucleosides," *Carbohydrate Research*, 97:139-146 (1981)	
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	GE	OHNO, *et al.*, "Synthetic Studies on Biologically Active Natural Products by a Chemicoenzymatic Approach," *Tet. Letters*, 40:145-152 (1984)	
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	GI	SATSUMABAYASHI, S. *et al., "The* Synthesis of 1,3-Oxathiolane-5-one Derivatives," *Bull, Chem. Soc. Japan*, 45:913-915 (1972)	
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	GK	SCHINAZI, R.F., *et al.*, "Insights into HIV Chemotherapy," *AIDS Research and Human Retroviruses* 8(6):963-990 (1992)	
	GL	SCHINAZI, R.F., *et al.*, "Pharmacokinetics and Metabolism of Racemic 2',3'-Dideoxy-5-Fluoro 3'-Thiacytidine in Rhesus Monkeys," *Antimicrobial Agents and Chemotherapy* 36(11):2432-2438 (1992)	
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RL	GN	SECRIST, *et al.*, "Resolution of Racemic Carbocyclic Analogues of Purine Nucleosides Through the Action of Adenosine Deaminase Antiviral Activity of the Carbocyclic 2'-Deoxyguanosine Enantiomers," *J. Med. Chem.*, 30:746-749 (1987)	

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PL	HA	SHEWACH, *et al.*, "Affinity of the antiviral enantiomers of oxathiolane cytosine nucieosides for human 2'-deoxycytidine kinase," *Biochem. Pharmacol.*, 45(7):1540-1543 (1993)	
	HB	SOUDEYNS, H., *et al.*, "Anti-Human Immunodeficiency Virus Type 1 Activity and In Vitro Toxicity of 2'-Deoxy-3'-Thiacytidine (BCH- 189), a Noval Heterocyclic Nucleoside Analog," *Antimicrobial Agents and Chemotherapy*, 35(7):1386-1390 (1991)	
	HC	STORER, R., *et al.*, *"The* Resolution and Absolute Stereochemistry of the Enantiomeris of *cis*-1-[2-(Hydromethyl)- 1,3-Oxathiolan-5-yl)cytosine (BCH 189): Equipotent Anti-HIV Agents," *Nucleosides & Nucleotides*, 12(2):225-236 (1993).	
	HD	VAN AERSCHOT, *et al.*, "Synthesis and Anti-HIV Evaluation of 2',3'-Dideoxyribo-5-chloropyrimidine Analogues: Reduced Toxicity of 5-Chlorinated 2'-3' Dideoxynucleosides," *J. Med. Chem.*, 33:1833-1839 (1990)	
	HE	VAN DRAANEN, *et al.*, "Influence of Stereochemistry on Antiviral Activities and Resistance Profiles of Dldeoxycytidine Nucleoslides, *Antimicrobial Agents and Chemotherapy*, 38(4):868-871 (April 1994)	
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	HG	VORBRÜGGEN, *et al*, "Nucleoside Synthesis with Trhnethylsilyl Triflate and Perchlorate as Catalysts," *Chem. Ber.*, 114:1234-1255 (1981)	
	HH	WILSON, *et al.*, "The 5'-Triphosphates of the (1) and (+) Enantiomers *of cis*-5-Fluoro-l-[2-(Hydroxymethyl)-1,3-Oxathiolane-5-yl]Cytosine Equally Inhibit Human Immunodeficiency Virus Type 1 Reverse Transcriptase," *Antimicrob. Agents and Chemother.*, 37(8):1720-1722 (1993).	
V	HI	WILSON, L.J., *et al.*, "A General Method for Controlling Glycosylation Stereochemistry in the Synthesis of 2'-Deoxyribose Nucleosides," *Tetrahedron Lett.*, 31(13):1815-1818 (1990).	
PL	HJ	WILSON, L.J., *et al.*, *"The* Synthesis and Anti-HIV Activity of Pyrimidine Dioxolanyl Nucleosides," *Bio-organic & Medicinal Chemistry Letters*, 3(2):169-174 (1993).	

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